

AMENDMENT UNDER 37 C.F.R. §1.111
U.S. Application No. 09/277,198

Submission of Corrected Formal Drawings and include Form PTO-948 with the next Office Action.

Rejections under 35 U.S.C. § 102

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by Kawai et al. (U.S. Patent No. 5,691,590 “Kawai”). This rejection is respectfully traversed as follows.

Applicant’s invention relates to a stator for an automotive alternator system which innovatively improves power generation efficiency, thermal conductivity and winding density, while reducing size, lowering weight, reducing noise, reducing electromagnetic noise and reducing damage to the stator coil due to abrasion, shorting and thermal breakdown.

It should be noted that while §102(b) prior art constitutes prior art for all that it discloses, in order to anticipate a particular feature of an invention, it must also be enabling for that particular feature - so that one of ordinary skill in the art at the time of the invention would be placed in possession thereof. The reference must teach every claimed feature of Applicant’s invention in order to anticipate the same.

Kawai does not disclose, teach or suggest an automotive alternator stator with similar characteristics or structure to Applicant’s claimed invention. Specifically, Applicant’s independent claim 1 recites a preformed stator coil in contact with the axial end surfaces of a stator core without any gaps therebetween. The Examiner asserts that Kawai discloses preformed coils (6) and from Kawai’s Figures 1 and 2, that it appears the inner portion of the coils contacts the core.

Applicant explicitly claims that the inner circumferential surfaces of the bridge portions of Applicant’s stator coil contact the axial (top and bottom) end surfaces of Applicant’s stator core without any gaps. While Kawai discloses that its coil ends have no crossed portions, nowhere within the Kawai reference is such a feature discussed or shown.

The Examiner merely asserts that Kawai’s Figures 1 and 2 appear to show this feature. However, Kawai’s Figures 1 and 2 actually show the opposite. Kawai’s Figure 2 only shows the

top (end view) of the coil and core, and there is no indication that no gap exists between the coil and core at the ends of the core (this would require an axial (cross-section) view). Kawai's Figure 1, on the other hand, shows a significant gap between the ends of the core (5a) and the coil windings (6a-6f) and that air flows between the coils/windings themselves, and between the coils/windings and the core (as illustrated by the curved arrow designating air flow in Figure 1). By comparison, see Applicant's Figure 1 which clearly depicts air flow over (outside) the stator coil (as designated by the curved arrows).

Moreover, Applicant's application outlines how heretofore such an arrangement was unknown or impossible (see Applicant's page 4, line 4 - page 5, line 25, and page 10, lines 18-27). The Examiner has not cited any reason for questioning Applicant's assertions above.

Additionally, Kawai does not disclose, teach or suggest Applicant's claimed preformed stator coil - which is a cluster of connected stator windings. Kawai merely discloses partially prewound coils 6 which are individually assembled (wound) to the stator teeth (see column 3, lines 20-23 and 55-57) and then connected together (see column 3, line 57 - column 4, line 15). Thereafter, a thermoresin covers the windings and core (column 3, lines 30-32). Kawai, therefore, discloses individual windings/coils which are assembled to the core, then connected together, and/or individually wound coils which are wound onto the stator core teeth (column 3, line 56-column 4, line 10). Kawai does not disclose a preformed stator coil which is already completed and made part of the completed stators' structure. Rather, Kawai discloses a non-preformed coil made up of (possibly) preformed windings which are then interconnected. Kawai even teaches that the coil and core are subsequently covered in thermoresin. Thus, Kawai cannot possibly disclose a preformed stator coil as Applicant claims.

Further, as taught by Applicant's application, while preformed coils, generally and alternately individually wound coils having no gaps therein, might be argued to be taught by Kawai or known in the art, preformed coils without gaps as claimed in Applicant's claim 1 are not known or disclosed. Up until Applicant's invention, preformed stator coils could not be assembled to stator cores without damage; see page 5, lines 26-33 of Applicant's specification.

Individually wound or assembled coils dramatically decrease the efficiency of the manufacturing process for the stator, and obviate the purpose of Applicant's invention and for preforming the coil as in Applicant's claim 1.

It is, therefore, clear that Kawai cannot be construed so as to anticipate Applicant's invention of claim 1 because it does not anticipate or render obvious all the elements of this claim. Therefore, Applicant respectfully requests the Examiner to withdraw the claim rejection under 35 U.S.C. § 102 and allow claim 1.

Rejections under 35 U.S.C. § 103

Claims 2-4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawai. This rejection is respectfully traversed as follows.

With respect to claim 2, Kawai does not disclose, teach or suggest Applicant's invention of claim 2. This claim is dependent upon independent claim 1 and is not rendered obvious for at least the reasons discussed above. Particularly, Kawai does not have the structural feature of longitudinally perpendicular grooves as claimed in Applicant's claim 2. A portion of Applicant's claimed longitudinally perpendicular grooves will necessarily remain in the finished stator core as shown in Applicant's Figure 7. Kawai merely discloses "U-shaped teeth tips" which are subsequently flared into a T-shape. Kawai's specification does not discuss and its Figures do not show any perpendicular groove in its teeth tips. Thus, no perpendicular groove is disclosed or taught in Kawai. Therefore, Kawai does not render obvious Applicant's claim 2.

With respect to claims 3-4, these claims are dependent on independent claim 1 and are not rendered obvious for at least the reasons discussed above. Kawai's coils/windings, once assembled, projecting significantly from the core, forming gaps at the core ends. Also, Kawai's preformed coils/windings are not complete and, once assembled to the core, are covered with a thermoresin which will also necessarily fill in the axial slots and at least partially cover the core. On the other hand, Applicant's claimed stator coil is preformed and its covering/coating only covers the coil (see Applicant's Figures 3 and 10). This will result in a completed structure

which is observably different from that of Kawai. Kawai discloses no similar feature. Therefore, Applicant's claims 3 and 4 are not rendered obvious by Kawai.

Applicant submits that it far from obvious that the cited reference could be used to render obvious Applicant's claimed invention, and it is clear that Kawai does not teach or suggest the automotive alternator stator as defined in Applicant's independent claim 1 or dependent claims 2-4. The Kawai reference is individually complete and there is no suggestion or motivation to modify the reference. More specifically, an artisan of ordinary skill would not and could not have modified the reference in the manner suggested by the Examiner to produce the claimed subject matter because Kawai fails to disclose several features of Applicant's claimed invention. Therefore, it is respectfully submitted that Kawai does not establish a *prima facie* case of obviousness against Applicant's claims, as one of ordinary skill in the art would have had to add to this reference additional features which are neither described nor suggested by Kawai. Therefore, it is submitted that the reference does not form a sufficient basis for denying patentability of Applicant's claims 1-4 under 35 U.S.C. § 103, and reconsideration and withdrawal of the rejections are respectfully requested.

Conclusion

In view of the foregoing, Applicant submits that claims 1-4 are patentable and this application is now in condition for allowance. It is therefore respectfully requested that the Examiner reconsider the application and that the application be passed to issue.

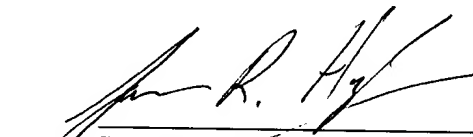
If for any reason the Examiner finds this application not to be in condition for allowance, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below to discuss any steps which may be necessary to place the application in condition for allowance.

AMENDMENT UNDER 37 C.F.R. §1.111
U.S. Application No. 09/277,198

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



James R. Hughes
Registration No. 45,657

SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

Date: July 6, 2000